

Portable Executable Representation <u>111</u>

FIG. 1A

Executable Source Code
Representation (Executable
Code, Data, etc.)
131

Intermediate Source Code Representation (Symbol Tables, Object Bindings, etc.) 133

Source Code Processing Command Information (Flags, Directives, Options) 135

Portable Executable Source Code Representation 141

FIG. 1B

# Portable Executable Source Code Representations Prakash, et. al. 004-40218 3/12

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#### RECEIVE COMMAND TO GENERATE PORTABLE EXECUTABLE REPRESENTATION OF SOURCE CODE 201

STORE INFORMATION ENTERED WHEN INVOKING COMPILER TO COMPILE THE SOURCE CODE 202

PERFORM PLATFORM INDEPENDENT PROCESSING OF SOURCE CODE (E.G., LEXICAL ANALYSIS, SYNTAX ANALYSIS, SEMANTIC ANALYSIS) AND GENERATE INTERMEDIATE REPRESENTATION(S) OF SOURCE CODE 203

STORE COMPILER INFORMATION 205

PERFORM PLATFORM DEPENDENT PROCESSING OF INTERMEDIATE REPRESENTATION(S)

207

GENERATE EXECUTABLE REPRESENTATION AND PORTABLE EXECUTABLE REPRESENTATION THAT ACCOMMODATES THE EXECUTABLE REPRESENTATION AND THAT WILL ACCOMMODATE THE INTERMEDIATE REPRESENTATION(S) AND STORED COMPILER INFO 208

MARK AT LEAST ONE SECTION OF PORTABLE EXECUTABLE
REPRESENTATION FOR INTERMEDIATE REPRESENTATION(S) AND AT
LEAST ONE SECTION FOR STORED COMPILER INFORMATION
209

INSERT INTERMEDIATE REPRESENTATION(S) AND STORED COMPILER INFORMATION IN PORTABLE EXECUTABLE REPRESENTATION IN ACCORDANCE WITH MARKINGS

211

FIG. 2

Portable Executable Source Code Representations
Prakash, et. al.
004-40218
4/12

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#### Portable Executable Representation for Platform A 301

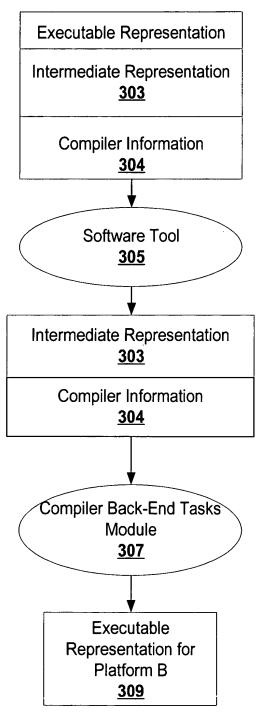
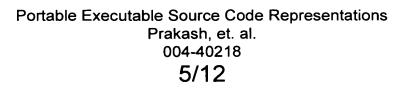


FIG. 3



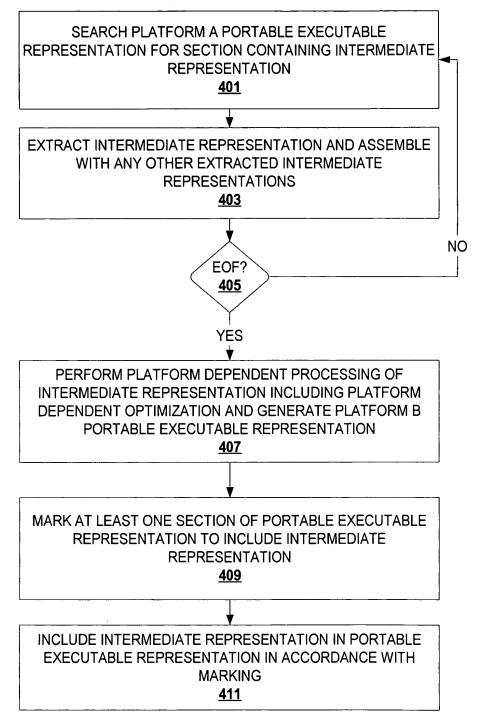


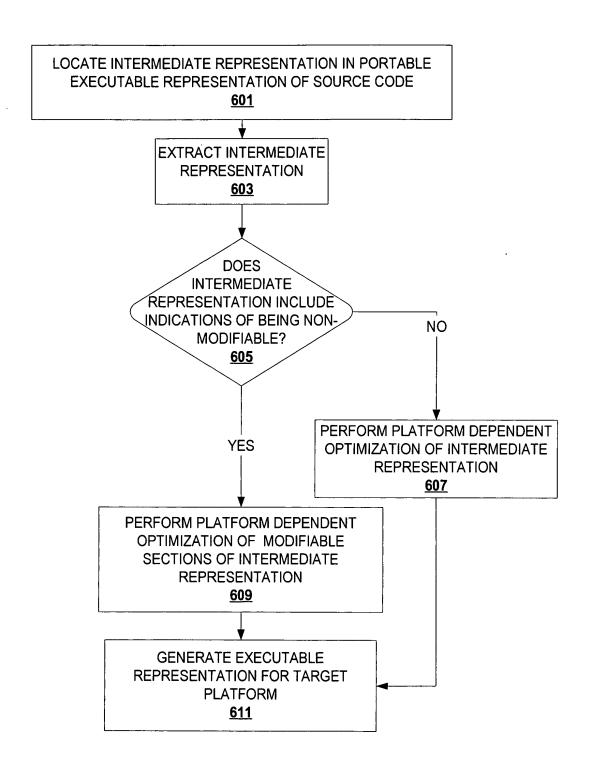
FIG. 4

Portable Executable Source Code Representations Prakash, et. al. 004-40218 6/12 INDICATE IN SOURCE CODE SECTIONS NOT TO BE MODIFIED 501 PERFORM PLATFORM INDEPENDENT PROCESSING OF SOURCE CODE AND GENERATE INTERMEDIATE REPRESENTATION OF THE SOURCE CODE 503 MAINTAIN INDICATIONS OF NON-MODIFIABLE CODE SECTIONS IN INTERMEDIATE REPRESENTATION **505** PERFORM PLATFORM DEPENDENT OPTIMIZATIONS OF MODIFIABLE SECTIONS OF INTERMEDIATE REPRESENTATION 507 GENERATE EXECUTABLE REPRESENTATION FROM OPTIMIZED INTERMEDIATE REPRESENTATION 508 GENERATE PORTABLE EXECUTABLE REPRESENTATION WITH EXECUTABLE REPRESENTATION, COMPILER INFORMATION, AND INTERMEDIATE REPRESENTATION

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509

## Portable Executable Source Code Representations Prakash, et. al. 004-40218 7/12



# Portable Executable Source Code Representations Prakash, et. al. 004-40218 8/12

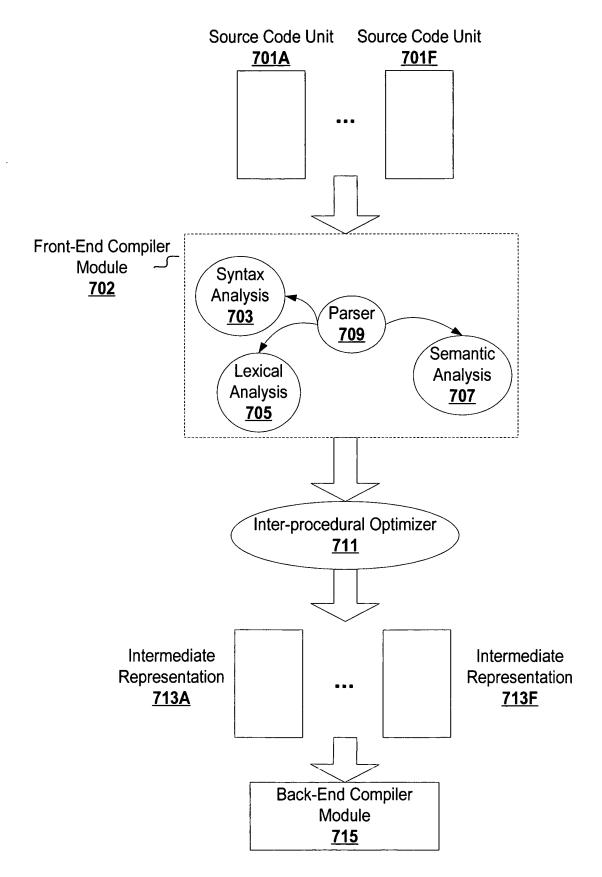


FIG. 7A

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## Portable Executable Source Code Representations Prakash, et. al. 004-40218 9/12

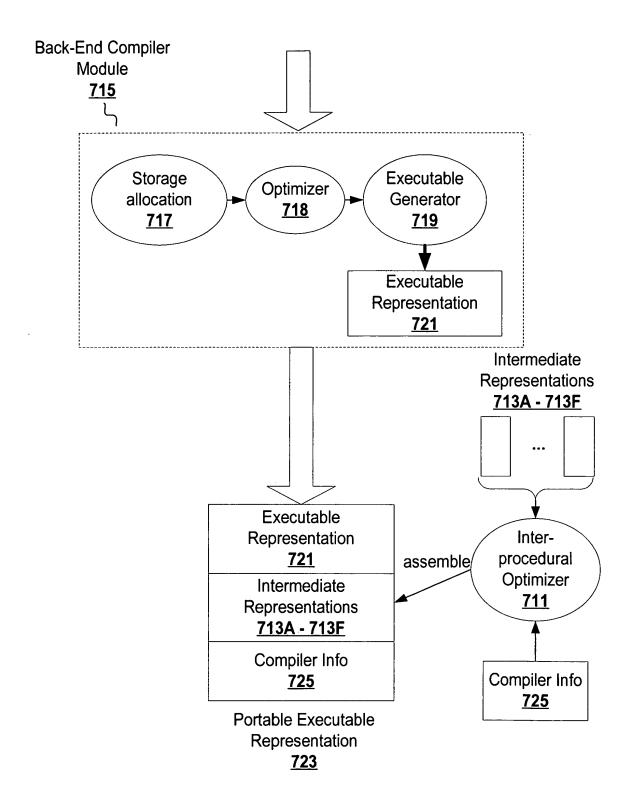


FIG. 7B

Executable Source Code
Representation (Executable
Code, Data, etc.)
801

Intermediate Source Code Representation(s) (Symbol Tables, Object Bindings, etc.) **803** 

Compiler Information (Flags, Directives, Options)
805

Linking Information (Object
File information for
Executable Representations
without accompanying
Intermediate
Representations)
807

Portable Executable Source Code Representation 809

FIG. 8A

Portable Executable Source Code Representations
Prakash, et. al.
004-40218
11/12

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Portable Executable Source **Code Representation 809 Executable Source Code Representation** 801 Intermediate Source Code Representation(s) **Compiler Information** Linking Information <u>807</u> **Object Files** 813A - 813F **Extract** Retrieve Link-Time Optimize, Optimizer and Link <u>817</u> **Executable Source Code** Representation <u>821</u>

FIG. 8B

**EMBODIES SOFTWARE PORTABILITY TOOL MEMORY NETWORK** INTERFACE 907A - 907F <u>905</u> **PROCESSOR** SYSTEM **UNIT BUS** <u>901</u> <u>903</u> **STORAGE** DEVICE(S) COMPUTER 909A - 909D SYSTEM 900

FIG. 9